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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,528	07/29/2003	Tomohiro Ikegami	S1459.70055US00	6062

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EXAMINER	
MALKOWSKI, KENNETH J	
ART UNIT	**PAPER NUMBER**
2613	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/629,528	IKEGAMI ET AL.	
	Examiner	Art Unit	
	Kenneth J. Malkowski	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. JP08-212501 to Kazufumi et al. in view of U.S. Patent No. 5,822,356 to Jewell et al. and further in view of U.S. Patent No. 5,818,188 to Hirai et al.

With respect to claims 1 and 6-7, Kazufumi discloses an optical proximity spatial transmission system for transmitting information data optically through a local space, the system comprising: a first communication device (page 2 paragraph 11 (rotating cylinder device))(Figure 5 (upper cylinder with an arrow indicating rotation)) having at least one of a first light emitter (1, Fig 5) or first photo detector installed thereon (4, Fig 5); a second communication device (page 2 paragraph 11 (fixed cylinder device))(Figure 5 (lower cylinder)) having installed thereon at least one of a second photodetector which detects light from the first light emitter (2, Fig 5 (shown communicating with the first laser diode))(page 3 paragraph 14 (signal 41 is transmitted to photodiode 2)) or a second light emitter which emits light toward the first photodetector (3, Figure 5 (shown emitting light via arrow 42 to the first photo diode))(page 3 paragraph 14 (signal 42 is transmitted toward the first photodetector)); and wherein the first communication device being rotatable around an axis thereof aligned

with an optical axis of at least one light outgoing from the first light emitter or light incident upon the first photodetector (Figure 5 shows the axis of rotation on the upper cylinder which is formed at a right angle to arrows 41 and 42 depicting outgoing and incident light, thereby rotating itself around n axis aligned with said light)) while the second communication device is fixed on the optical axis (page 2 paragraph 2 (transmission occurs between a rotation section and a fixed section)). However, Kazufumi fails to disclose an anti-scattering lens disposed either behind the first or second light emitter or in front of the first or second photo-detector. Despite this, anti-scattering lenses are a well-known advantageous implementation in the art. Jewell, from the same field of endeavor discloses an improved lens structure, which reduces the scattering and/or reflection losses in an optical cavity (abstract)(Figure 4B)(column 5 lines 31-32 (anti-scatter lens)). Therefore, it would have been obvious to one of ordinary skill in the art to implement the anti-scatter lens as taught by Jewell either behind the first or second light emitter or in front of the first or second photo-detector. The motivation for using an anti-scatter lens would in such a way would have been to enhance spontaneous emission and also reduce scattering and thereby reduce power loss within the transmission system (Jewell (column 3 lines 48-63)).

Furthermore, Kazufumi in view of Jewell fail to disclose an electromagnetic coupler adapted to transfer power between said first communication device and said second communication device. Hirai et al., from the same field of endeavor discloses a noncontacting electric power transfer apparatus (title) between a stationary body and a rotating body (Figures 25A and 27) using an electromagnetic coupler (283, Figure

27)(column 18 lines 59-66 (electromagnetic induction coupler)). Therefore, it would have been obvious to one of ordinary skill in the art to implement the electromagnetic coupler between a first communication device and a second communication device as disclosed by Hirai into the optical transmission system as disclosed by Kazufumi in view of Jewell. The motivation for doing so would have been to provide power transfer without direct electric contact in order to allow for rotating parts (column 4 lines 22-36) which allows for arbitrary rotations in that the speed and angle of rotation does not effect magnetic flux linking (columns 4-5 lines 63-67 and 1-10).

With respect to claim 4, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 1, wherein the information data is transmitted in a base band domain (Kazufumi: Figures 1-3 and 5 show that there is no modulation occurring after light emission at photodiodes 2 or 4 such that the transmitted light is in the base band domain).

With respect to claim 5, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 1,wherein the transfer rate of the information data is 200 Mbps or more. Kazufumi discloses an optical transmission system (page 2 paragraph 8). Optical transmission systems inherently transmit at 200 Mbps or more. Applicant admits as much on page 2 paragraph 6 as well as pages 3-4 paragraphs 2 and 1 respectively (use of a communication oriented laser diode permits communications at a speed of about several Ghz to about several ten Ghz)).

With respect to claim 9, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 7, wherein optical spatial transmission is done in a space for rotation bearing of the rotating drum (page 2 paragraph 11 (transmission system with a rotating cylinder side), formed in the rotating and stationary drums of the rotating drum head unit (light sensing portion is attached to the fixed side. Moreover head chip us arranged to a rotating cylinder side))(Figures 1-6 all include depictions of said fixed and rotating sides interacting with each other in a transmission format)).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. JP08-212501 to Kazufumi et al. in view of U.S. Patent No. 5,822,356 to Jewell et al. and further in view of U.S. Patent No. 5,818,188 to Hirai et al. and further in view of U.S. Patent No. 4,753,506 to Einhorn et al.

With respect to claims 2, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 1, however, Kazufumi in view of Jewell fail to specifically disclose that the spot diameter, of light emitted from the light emitter toward the photodetector, at the light emitter is larger than an oscillation in a direction of an off-axis deviation caused by the rotation and also larger than rotation. Einhorn, from the same field of endeavor discloses an optical transmission with a rotating cylinder transmitting to a non-rotating member outside of a rotating axis (column 2 lines 43-49). Einhorn teaches using an optical transmission path and a detector for said path wherein the detection areas constitute a smaller area than the optical transmission path (column 3 lines 1-8) such that there is

continuous optical communication with the transmitted signal (abstract)(figure 1). Therefore, it would have been obvious to one of ordinary skill in the art to implement the spot diameter implementation as taught by Einhorn into the optical transmission system as taught by Kazufumi in view of Jewell. The motivation for doing so would have been to minimize the need for precise axial alignment between the rotating and non-rotating members (Einhorn: column 2 lines 45-48) thereby creating an optical transmission path wherein light emitter is larger than oscillation in a direction of an off-axis deviation caused by rotation.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. JP08-212501 to Kazufumi et al. in view of U.S. Patent No. 5,822,356 to Jewell et al. and further in view of U.S. Patent No. 5,818,188 to Hirai et al. and further in view of U.S. Patent No. 5,469,423 to Shinoda et al.

With respect to claim 3, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 1, however, Kazufumi in view of Jewell do not specifically disclose that a spot diameter, of light emitted from on of the first or second light emitter toward one of the photodetector, at the one of the first or second light emitter is larger than the one of the first and second photo-detector. However, manipulating a spot diameter to decrease said diameter prior to reaching a photo-detector is well known in the art as a possible advantage to proximity optical transmission systems. Shinoda, from the same field of endeavor discloses an optical transmission system wherein an expanded spot diameter from a light emitter is made smaller before reaching a photo detector (column 8 lines

40-54). Therefore, it would have been obvious to one of ordinary skill in the art to implement the diameter narrowing technique used in the photo-detection process as taught by Shinoda in the optical transmission system as taught by Kazufumi in view of Jewell. The motivation for doing so would have been to reduce the amount of light lost from the transmitted laser beam (Shinoda: column 8 lines 48-54).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. JP08-212501 to Kazufumi et al. in view of U.S. Patent No. 5,822,356 to Jewell et al. and further in view of U.S. Patent No. 5,818,188 to Hirai et al. and further in view of Japanese Patent No. JP05-135305

With respect to claim 8, Kazufumi in view of Jewell and further in view of Hirai disclose the optical proximity spatial transmission system as set forth in claim 1, including a light emitter and/or photodetector (1, Fig 5) on the rotating-side circuit board (page 2 paragraph 11 (rotating cylinder device))(Figure 5 (upper cylinder with an arrow indicating rotation)) connected to the photodetector and/or light emitter (4, Fig 5) on the stationary-side circuit board (page 2 paragraph 11 (fixed cylinder device))(Figure 5 (lower cylinder)); and an anti-scattering lens is provided between the light emitter and/or photo-detector on the rotating- or stationary-side circuit board. However, Kazufumi in view of Jewell fail to specifically disclose an optical fiber aiding the connection between said emitter and said photo-detector. Seigo, from the same field of endeavor discloses a rotating transmitter page 4 paragraph 36) that transmits optically to an optical receiver station (page 4 paragraph 42). Seigo further discloses using an optical fiber to aide in said optical transmission (page 4 paragraphs 43-46). The motivation for doing so would

have been to condense transmitted light thereby reducing power loss (page 4 paragraph 46).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KJM 1/13/07

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER